

Description of a new species *Ischnochiton dolii* sp. nov. (Polyplacophora: Ischnochitonidae) from Civitavecchia, Italy

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KEYWORDS. Polyplacophora, Ischnochitonidae, *Ischnochiton dolii* sp. nov., Italy.

ABSTRACT. *Ischnochiton dolii* sp. nov. is described. It is compared with all recent Mediterranean and northeastern Atlantic *Ischnochiton* species, and with the European fossil species from the Pliocene and the Miocene.

RESUME. *Ischnochiton dolii* sp. nov. est décrit et comparé à tous les *Ischnochiton* récents de la Méditerranée et du nord-est de l'Océan Atlantique, et aux espèces fossiles européennes du Pliocène et du Miocène.

INTRODUCTION

On June 1991, a Roman jar (=dolium ; IV century B.C.) was found in the Tyrrhenian Sea, off Civitavecchia, at a depth of 550 meters (Tringali & Ardovini, 1993). In the muddy contents 333 valves (69 head, 228 intermediate and 36 tail) were found of a possibly subfossil Polyplacophora species which proved to be new to science.

SYSTEMATICS

Family ISCHNOCHITONIDAE Dall, 1889

Subfamily Ischnochitoninae

Genus *Ischnochiton* Gray, 1847.

Type species : *Chiton textilis* Gray, 1828, SD Gray, 1847.

Ischnochiton dolii sp. nov.

Figs 1-5

Type material. Off Civitavecchia, -550 m, 333 valves : holotype, 3 x 7.5 mm (Fig. 1) + 5 paratypes in Museo di Zoologia of the Bologna University (holotype reg. no 11302, paratypes reg. no 11303), other paratypes in Institut Royal des Sciences Naturelles de Belgique (4

valves, reg. no IG 28523), Museum National d'Histoire Naturelle, Paris (3 valves), R. Ardovini coll. (138 valves), F. Giovini coll. (80 valves), B. Dell'Angelo coll. (90 valves, reg. no P151F/01), R.A. Van Belle coll. (12 valves, reg. no F1003a).

Tuscan Archipelago, -70/100 m : 1 intermediate valve, 2.2 x 5.5 mm (B. Dell'Angelo coll. reg. no L15/01).

Type locality. Tyrrhenian Sea, off Civitavecchia, Italy, -550 m.

Diagnosis. Dimensions of largest valves : head valve 3.5 x 7 mm, intermediate valve 3 x 7.5 mm, tail valve 4 x 6.5 mm. Considering the size of these valves and the fact that all *Ischnochiton* species are oval to elongate oval, one can assume that *I. dolii* was an animal of medium size (up to about 20 mm long), rather elevated (jugal angle 85-110°), carinated with the side slopes straight, the valves not beaked. Colour of tegmentum dark brown, variously blotched and/or streaked with white.

Description. Head valve (Fig. 2) semicircular, front slope straight to very weakly concave, posterior margin widely V-shaped, deeply notched in the middle, tegmentum sculptured with rather flat, subgranulose radiating ribs, 17-26 near apex, splitting up to more than double that number near periphery of valve,

interstices very narrow, ribs concentrically crossed by numerous growth lines. Valve II pentagonal, other intermediate valves (Figs 1, 4) broadly rectangular, front margin obtusely angular, straight and slightly slanting at both sides of jugal angle, side margins weakly convex, hind margin straight, mucro inconspicuous, lateral areas moderately elevated, sculptured like head valve, 4-5 radiating ribs, in some valves becoming obsolete towards side margin, central area with 13-19 longitudinal sulci (Fig. 5) on both sides of the smooth, wedge-shaped jugum, the 3-4 innermost sulci forwardly converging towards jugum, intervening ribs rather flat, slightly wider than sulci. Tail valve (Fig. 3) depressed, short, about twice as wide as long, front margin broadly angular like in intermediate valves, hind margin less than semicircular, mucro slightly antemedian, little raised, antemucronal area sculptured like central area of intermediate valves, postmucronal area with 18-20 radiating, flattish ribs, crossed by rather deep concentric grooves, in some valves this sculpture becomes indistinct near the mucro.

Articulamentum whitish, apophyses wide, short, evenly rounded, jugal sinus shallow, relatively narrow, weakly convex, insertion plates short, slit formula 9-10/1/7-8 (one intermediate valve has a second slit on one side), slits inequidistant, upper area of teeth grooved, eaves very narrow.

Distribution. Only known from the type material.

Remarks. As the subgeneric division of *Ischnochiton* s.l. is partly based on characteristics of the perinotum (here lacking), a subgeneric assignment for *I. dolii* is impossible.

A similar remark equally applies to all fossil *Ischnochiton* species.

Etymology. The specific name refers to the Roman jar (= dolium) in which the valves have been found.

Discussion. Comparing the recent European *Ischnochiton* species with *I. dolii*, we conclude that the latter differs from them all.

I. (Stenosemus) albus (Linnaeus, 1767), an Atlantic species, has the tegmentum of all valves uniformly microgranulose, smooth and glossy to the naked eye.

Apart from the tegmental colour and the always present, wavy concentric lirae on end valves and lateral areas of intermediate valves, *I. (Simplischnochiton) rissoi* (Payraudeau, 1826), common in the Mediterranean Sea, has a much greater number of longitudinal riblets on the central areas.

I. (Stenosemus) exaratus (G.O. Sars, 1878), an Atlantic deep water species, differs by the uniformly dirty white to yellowish tegmental colour, the weaker sculpture and especially, on the central areas, the

longitudinal sulci which do not reach the posterior margin of the valve.

I. (Simplischnochiton) obtusus Carpenter in Pilsbry, 1893, described from Portugal, has the lateral areas more strongly raised, only 10 longitudinal sulci on the pleural areas, and the mucro of the tail valve median and prominent.

I. dolii seems closest related to *I. (Stenosemus) vanbellei* Kaas, 1985, known from the white coral banks of the Ligurian Sea, but that species has only 16 non splitting, radiating ribs on the head valve, 2 ribs (3-4 in valve II) on the lateral areas of the intermediate valves, and only 7-9 longitudinal sulci on either side of the jugum.

As the correct geological age of *I. dolii* cannot be established with any degree of certainty, *I. dolii* needs to be compared with European Pliocene and Miocene *Ischnochiton* species too.

Both *I. anserinus* Laghi, 1977, from the Pliocene of the Modena Basin, Italy, and *I. ulivii* Dell'Angelo & Forli, 1996, from the Pliocene of Pietrafitta, Italy, have a completely different sculpture, without longitudinal or radiating ribs.

I. rudolticensis Sulc, 1936, from the Miocene of the Vienna Basin, Austria, has a sculpture resembling that of *I. (S.) rissoi* and consequently cannot be conspecific with *I. dolii*.

I. korytnicensis Baluk, 1971, from the Miocene of the Holy Cross Mountains, Poland, has undulating longitudinal ribs on central area of intermediate valves, and irregular nodular elevations, variable in outline, on lateral areas and end valves.

ACKNOWLEDGEMENTS.

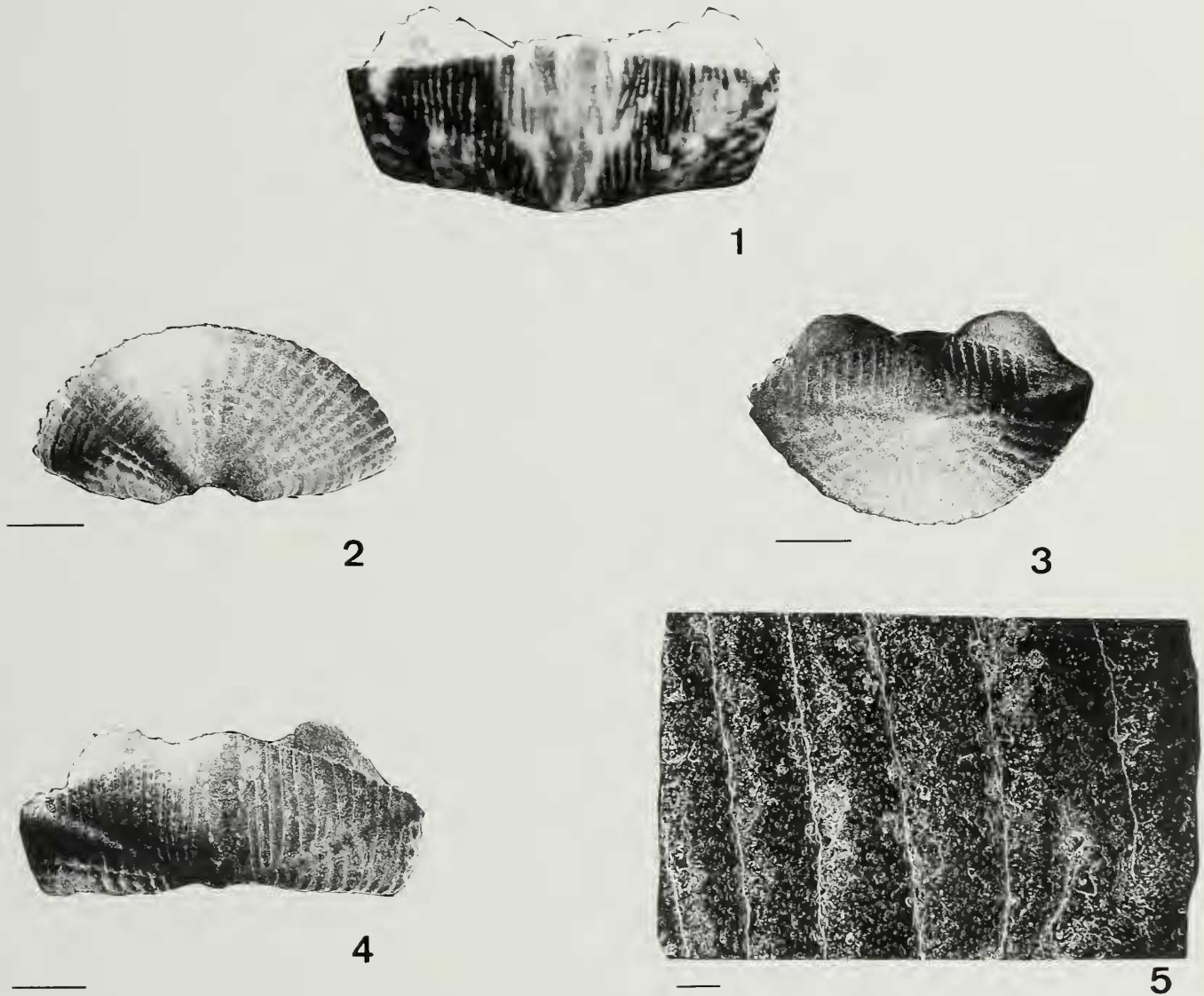
We are indebted to R. Ardovini (Roma), M. Pizzini (Roma) and F. Giovine (Villa S. Giovanni) who provided the material, to C. Lombardi (Museo di Zoologia, Bologna University) for preparing the SEM photos, and E. Ulivi (Firenze) for the photo of the holotype.

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Figs. 1-5. *Ischnochiton dolii* sp. nov. **Fig. 1.** Holotype, 3 x 7.5 mm, Bologna Museum 11302 (photo E. Ulivi). **Figs. 2-5.** Paratypes, Bologna Museum 11303 (SEM photos C. Lombardi). **Fig. 2.** Head valve. **Fig. 3.** Tail valve. **Fig. 4.** Intermediate valve. **Fig. 5.** Detail of sculpture of pleural area of intermediate valve. Scales - 2-4 ; 1 mm ; 5 : 100 μ m.